

Fact Sheet



For Final Renewal Permitting Action Under 45CSR30 and Title V of the Clean Air Act

Permit Number: **R30-03900005-2012**
Title V Application Received: **June 15, 2011**
Plant Identification Number: **03900005**
Permittee: **Union Carbide Corporation**
Facility Name: **Institute Plant**
Business Unit: **Water Soluble Polymers (Group 5 of 5)**
Mailing Address: **P. O. Box 8361, South Charleston, WV 25303**

Physical Location: Institute, Kanawha County, West Virginia
UTM Coordinates: 432.00 km Easting • 4,284.31 km Northing • Zone 17
Directions: From I-64, take the Institute exit, turn right onto State Route 25. Plant is located about ½ mile west on Route 25.

Facility Description

Union Carbide Corporation's Institute Plant has divided their Title V Application into the following five separate business units for which each will receive a Title V Permit:

Group	Process Units
1 of 5	EO Catalyst/Glycol Recovery
2 of 5	Acetone Derivatives/TONE™ Polyol
3 of 5	Logistics
4 of 5	Glutaraldehyde
5 of 5	Water Soluble Polymers

Group 5 of 5 includes the CELLOSIZETM HEC and POLYOXTM WSR Plants. CELLOSIZETM Hydroxyethyl Cellulose (HEC) is a water soluble polymer used in architectural coatings, latex polymerization, oil field applications, building products, and personal care products. POLYOXTM WSR is a water soluble resin used in the pharmaceutical industry, personal care industry, and the paper industry.

Emissions Summary

Plantwide Emissions Summary [Tons per Year]		
Regulated Pollutants	Potential Emissions (Group 5 of 5)	2011 Actual Emissions (Group 5 of 5)
Carbon Monoxide (CO)	9	5
Nitrogen Oxides (NO _x)	2	1
Particulate Matter (PM ₁₀)	9	4
Total Particulate Matter (TSP)	9	4
Sulfur Dioxide (SO ₂)	1	<0.01
Volatile Organic Compounds (VOC)	456	364
<i>PM₁₀ is a component of TSP.</i>		
Hazardous Air Pollutants	Potential Emissions (Group 5 of 5)	2011 Actual Emissions (Group 5 of 5)
Total HAPs	8.25	1.79

Some of the above HAPs may be counted as PM or VOCs.

Title V Program Applicability Basis

Due to the facility-wide potential to emit over 100 tons per year of criteria pollutants, over 10 tons per year of an individual HAP, and over 25 tons per year aggregate HAPs, Union Carbide Corporation's Institute Plant is required to have an operating permit pursuant to Title V of the Federal Clean Air Act as amended and 45CSR30.

Legal and Factual Basis for Permit Conditions

The State and Federally-enforceable conditions of the Title V Operating Permits are based upon the requirements of the State of West Virginia Operating Permit Rule 45CSR30 for the purposes of Title V of the Federal Clean Air Act and the underlying applicable requirements in other state and federal rules.

Group 5 of 5 has been found to be subject to the following applicable rules:

Federal and State:	45CSR6	Open burning prohibited.
	45CSR7	Particulate matter and opacity limits for manufacturing sources.
	45CSR11	Standby plans for emergency episodes.
	45CSR13	Preconstruction permits for minor sources.
	WV Code § 22-5-4 (a) (14)	The Secretary can request any pertinent information such as annual emission inventory reporting.
	45CSR30	Operating permit requirement.
	45CSR34	Emission Standards for Hazardous Air Pollutants Pursuant to 40 C.F.R. Part 63.
	40 C.F.R. Part 61	Asbestos inspection and removal
	40 C.F.R. Part 63, Subpart PPP	Polyether Polyols MACT
	40 C.F.R. Part 63, Subpart UUUU	Cellulose Products Manufacturing MACT

	40 C.F.R. Part 82, Subpart F	Ozone depleting substances
State Only:	45CSR4	No objectionable odors.
	45CSR§§21-37 and 40	Control of VOC Emissions
	45CSR27	Best Available Technology (BAT) for HAPs

Each State and Federally-enforceable condition of the Title V Operating Permit references the specific relevant requirements of 45CSR30 or the applicable requirement upon which it is based. Any condition of the Title V permit that is enforceable by the State but is not Federally-enforceable is identified in the Title V permit as such.

The Secretary's authority to require standards under 40 C.F.R. Part 60 (NSPS), 40 C.F.R. Part 61 (NESHAPs), and 40 C.F.R. Part 63 (NESHAPs MACT) is provided in West Virginia Code §§ 22-5-1 *et seq.*, 45CSR16, 45CSR34 and 45CSR30.

Active Permits/Consent Orders

Permit or Consent Order Number	Date of Issuance	Permit Determinations or Amendments That Affect the Permit (<i>if any</i>)
R13-0171E	01/30/2012	N/A
CO-R21-97-41	October 20, 1997	June 14, 2006 letter from J. L. Blatt November 14, 2011 letter from T. J. London
CO-R27-99-14-A(92)	March 31, 1999	November 14, 2011 letter from T. J. London July 23, 2012 email from Freddie Sizemore

Conditions from this facility's Rule 13 permit(s) governing construction-related specifications and timing requirements will not be included in the Title V Operating Permit but will remain independently enforceable under the applicable Rule 13 permit(s). All other conditions from this facility's Rule 13 permit(s) governing the source's operation and compliance have been incorporated into this Title V permit in accordance with the "General Requirement Comparison Table B," which may be downloaded from DAQ's website.

Determinations and Justifications

- 45CSR13 – Preconstruction permits for minor sources
 Since the previous issuance of this Permit, R13-0171C has been updated to R13-0171E (Application R13-0171D was withdrawn). The modification included the following changes:
 Tank T1914 replaced tank T1910. They have the same dimensions, conditions, and requirements. Conditions 4.1.20, 4.1.21, and 4.1.28 have been revised to update the new tank ID.
 Vessel V318 and associated baghouse LL211 were removed from service. These units have been removed from the equipment table. The opacity limits for this baghouse in Condition 4.1.13 have been removed. The table in Condition 4.1.12 has been revised due to the removed equipment.
 The table in Condition 4.1.14 has been revised. Although there is no change in the process or operation of the flare, R13-0171E revised the emission limits to reflect updated emission estimation calculations.
- 45CSR21 – Control of VOC Emissions
 Due to updated emissions calculations and new measurement data, the emission limits in Appendix A have been revised. These changes require public comment, and this comment period will coincide with the comment period of this Permit renewal. A new emission point for the Tank Truck Loading TTR_PX1 has been added. There are no HAPs in the vent gas, so MACT does not apply.

3. 45CSR27 - Best Available Technology (BAT) for HAPs
Due to updated emissions calculations and new measurement data, the emissions limits in Condition 5.1.14 have been revised. These revisions have been authorized by the Director via Section IV, Other Provisions, Item 10 of the CO-R27-99-14-A(92) Consent Order.

4. Miscellaneous
 - a. Added Table 1.2 and other changes have been made to the Permit boilerplate.

 - b. The pulse jet baghouses (C211, D211, E211, J211, K211, N211, O211, P211, Q211, R211, S211, T211, U211, V211, W211, X211, Y211, Z211, AA211, BB211, CC211, DD211, EE211, FF211, and GG211) are used in product recovery, and are an integral part of the process. In the equipment table the citation has been changed from control devices to emission units.

 - c. Vessel 211LL has been removed from service. The unit's listing has been removed from the equipment table and Condition 4.1.12.

 - d. The emission point ID for Tank 1915 has been changed to 221B in Condition 4.1.28.

 - e. Conveyor #5 (E525) has been removed from service. The unit's listing has been removed from Condition 5.1.14.

 - f. Tank 1220 was transferred to this Permit from Group 2 of 5. There were no applicable requirements for the tank in the Group 2 Permit.

Non-Applicability Determinations

The following requirements have been determined not to be applicable to the subject facility due to the following:

1. **40 C.F.R. 64 - Compliance Assurance Monitoring (CAM)**

According to 40 C.F.R. §64.2(a), CAM applies to a pollutant-specific emissions unit at a major source that is required to obtain a part 70 or 71 permit if the unit satisfies all of the following criteria: 1) The unit is subject to an emission limitation or standard for the applicable regulated air pollutant (or a surrogate thereof), other than an emission limitation or standard that is exempt under 40 C.F.R. §64.2(b)(1); 2) The unit uses a control device to achieve compliance with any such emission limitation or standard; and 3) The unit has potential pre-control device emissions of the applicable regulated air pollutant that are equal to or greater than 100 percent of the amount, in tons per year, required for a source to be classified as a major source. 40 C.F.R. §64.2(b)(1)(i) exempts emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act; and 40 C.F.R. §64.2(b)(1)(vi) exempts emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method.

Cellosize™ Plant

Flare A221: The volatile organic compound loading to the flare from Cellosize emission units is less than 100 tpy. There are no hazardous air pollutants vented to the flare from Cellosize emission units.

Scrubber (A211 or A211A): The volatile organic compound loading from Cellosize emission units is greater than 100 tpy. Permit R13-0171E requires continuous parametric monitoring of the scrubber (Conditions 4.1.4 and 4.2.1) to comply with VOC emission limits. The scrubber is exempt from CAM per 40C.F.R. §64.2(b)(1)(vi).

Permit R13-0171E requires continuous parametric monitoring of the scrubber (Conditions 4.1.4 and 4.2.1) to comply with 40 CFR 63, Subpart UUUU for hazardous air pollutants. The HAP emission limits under 40 C.F.R. 63, Subpart UUUU are exempt from CAM per 40 C.F.R. §§64.2(b)(1)(i) and (vi).

Baghouses: Inherent process equipment - Integral to process, not control devices under CAM.

Polyox™ Plant

Flare A221 (Cellosize Permit R13-0171E): The volatile organic compound loading to the flare from Polyox emission units is greater than 100 tpy. The hazardous air pollutants loading to the flare from Polyox emission units is greater than 10 tpy of ethylene oxide. The flare must be operated in accordance with 40 CFR Subpart PPP for control of ethylene oxide emissions and are exempt from CAM per 40 C.F.R. §§64.2(b)(1)(i) and (b)(i)(vi). The Plant meets CAM provisions for VOCs by operating the flare in accordance with Subpart PPP and Permit R13-0171E, which specifies a continuous compliance determination method.

Scrubber (B320): VOC loading to the scrubber is less than 100 tpy. Total HAP loading to the scrubber is less than 10 tpy. There are no emission units vented to the scrubber that are covered by CAM provisions.

Baghouses (E221A and E707): The pre-control particulate matter loading to either control device is less than 100 tpy. There are no emission units vented to the either baghouse that are covered by CAM provisions.

2. Greenhouse Gas Tailoring Rule

This is a renewal Title V Permit and there have been no changes that would have triggered a PSD permit. As such, there are no applicable GHG permitting requirements.

Request for Variances or Alternatives

None.

Insignificant Activities

Insignificant emission unit(s) and activities are identified in the Title V application.

Comment Period

Beginning Date: June 5, 2012

Ending Date: July 5, 2012

All written comments should be addressed to the following individual and office:

Mike Egnor
Title V Permit Writer
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304

Procedure for Requesting Public Hearing

During the public comment period, any interested person may submit written comments on the draft permit and may request a public hearing, if no public hearing has already been scheduled. A request for public hearing shall be in writing and shall state the nature of the issues proposed to be raised in the hearing. The

Secretary shall grant such a request for a hearing if he/she concludes that a public hearing is appropriate. Any public hearing shall be held in the general area in which the facility is located.

Point of Contact

Mike Egnor
West Virginia Department of Environmental Protection
Division of Air Quality
601 57th Street SE
Charleston, WV 25304
Phone: 304/926-0499 ext. 1208 • Fax: 304/926-0478

Response to Comments (Statement of Basis)

The Permittee will be changing the rotary valve for the POLYOX™ Solids Handling Systems. This valve will be of a different size than currently exists. Current Condition 5.4.11 limited the valve speed to not exceed 3 revolutions per minute. This would limit the solids throughput to not more than 6 cubic feet per minute. Since the new rotary valve would have a different throughput at the same valve speed, Condition 5.4.11 has been changed to require that the throughput of the solids not exceed 6 cubic feet per minute. Additionally, the Permittee shall annually check the rotary valve speed and calculate the corresponding throughput and adjust, if necessary, to stay below 6 cubic feet per minute.

Tank 4992, which was initially listed as “idle”, will actually be in service. Emissions from this tank are insignificant and do not trigger any applicable rules. Since it does not contain ethylene oxide nor propylene oxide, all references to Tank 4992 in Condition 5.1.14 have been removed.